| Index of Claims |          |               |          |          |          |            |                 |          |                 |                        | Application/Control No.                          |            |              |  |        |         |          |          |                        |          | Applicant(s)/Patent under Reexamination |       |            |               |          |          |           |               |         |         |          |   |
|-----------------|----------|---------------|----------|----------|----------|------------|-----------------|----------|-----------------|------------------------|--|------------|--------------|--|--------|---------|----------|----------|------------------------|----------|---|-------|------------|---------------|----------|----------|-----------|---------------|---------|---------|----------|---|
|                 |          |               |          |          |          |            |                 |          |                 | 10/806,617<br>Examiner |  |            |              |  |        |         |          |          | SINGH ET AL.  Art Unit |          |   |       |            |               |          |          |           |               |         |         |          |   |
|                 |          | Ш             | Ш        |          |          |            |                 |          |                 |                        |  |            |              |  |        | :xa     | mir      | ner      |                        |          |   |       |            |               | Aı       | t U      | nit       |               |         | - 1     |          |   |
|                 |          |               | 1111     |          |          |            |                 |          |                 |                        |  |            |              |  | E      | 3ra     | ndo      | on '     | W. I                   | Bow      | ers                                     | 3     |            |               | 28       | 325      |           |               |         |         |          |   |
|                 |          |               |          |          |          |            | 1               |          |                 |                        |  |            |              | -  |        |         | ,        |          |                        |          |   |       | 1          |               |          |          |           |               |         | _       |          |   |
|                 |          | <b>√</b>      | Re       | je       | cte      | ed         |                 |          | -               | (Т                     | hrou<br>Ca                                       | igh<br>anc | nur<br>elle  | ne<br>d  | ral)   | )       |          | N        | No                     | n-E      | lec                                     | ted   |            | A             | A Appeal |          |           |               |         |         |          |   |
| = Allowed       |          |               |          |          | ÷        | Restricted |                 |          |                 |                        |  | ı          | Interference |  |        | тсе     |          | 0        | Objected               |          |   |       |            |               |          |          |           |               |         |         |          |   |
| Claim Date      |          |               |          |          |          |            |                 |          |                 |                        |  | <u> </u>   |              |  |        |         |          |          | I                      | Date     |   |       |            |               |          |          | 1         |               |         |         |          |   |
| Cla             |          | 9             | Date     |          |          |            |                 | П        | $\dashv$        | Cla                    | aim<br>I   | ╁          | Т            | Т  | т-     | Date    | e<br>    |          |                        | ┨        | Cli                                     | aim   | -          |               |          | Da       | te        | $\overline{}$ | т-      | Т       | 1        |   |
| Final           | Original | 29<br>06      |          |          |          |            |                 |          |                 |                        | Final  | Original   |              |  |        |         |          |          |                        |          |   | Final | Original   |               | ŧ        | ·        | ļ         |               |         |         |          |   |
|                 | 0        | J             |          | $\dashv$ |          |            | $\vdash$        |          |                 | $\dashv$               | -  | 51         | +            | ╁╴   | ╁      | ╁       |          |          | $\dashv$               | +        | -                                       |       | 101        | $\vdash$      | $\dashv$ | +        | +         | +             | +       | +       | ╁╌       | 1 |
|                 | 2        | 1             |          |          |          |            |                 |          |                 | 1                      | $\vdash$   | 52         | †            | 1  | $\top$ | $\top$  | $\vdash$ |          | $\top$                 | $\top$   | 1                                       | -     | 102        | f             | 1        | $\top$   | $\dagger$ | +             | +       | +       | T        |   |
|                 | 3        |               |          |          |          |            |                 |          |                 |                        |  | 53         |              |  |        |         |          |          |                        |          | ]                                       |       | 103        |               |          |          |           |               | $\top$  | $\top$  |          |   |
|                 | 4        | Ш             |          | _        |          |            | Ш               |          |                 | _                      |  | 54         |              |  | 1_     | $\perp$ |          |          |                        |          | ]                                       |       | 104        |               | $\Box$   |          |           |               | oxdot   | oxdot   |          |   |
|                 | 5        | $\mathbb{H}$  | 4        | _        |          |            | <u> </u>        |          | $\vdash \vdash$ | 4                      |  | 55         | $\perp$      | L  | ╄-     | ـ       | _        | <u> </u> | _                      | _        | 1                                       |       | 105        | $\perp$       | 4        | 4        | 1         | 4-            | 4       | $\bot$  | _        | ' |
|                 | 6<br>7   | $\mathbb{H}$  | +        | -        |          | _          | $\vdash \vdash$ | _        | -               | -                      |  | 56<br>57   | ┼            | <u> </u>   | +      | ┼       | -        | <u> </u> | -                      | +        | -                                       |       | 106<br>107 | $\vdash$      | 4        | 4        | +         | +             | ┿       | +       | _        |   |
|                 | 8        | +H            | $\dashv$ | $\dashv$ |          | _          | $\vdash$        | -        | -               | -1                     |  | 58         | +            | -  | +      | ╫┈      | ╁╌       | $\vdash$ |                        | +-       | -                                       | -     | 107        | ╁╌┼           | $\dashv$ | +        | +         | +             | +       | +-      | ╁        | 1 |
|                 | 9        | H             | -+       | ᅥ        | -        | _          | $\vdash$        | -        |                 | ┨                      |  | 59         | +            | -  | ╁╴     | ╁╴      | -        |          | +                      | +        | -                                       |       | 109        | ╁┼┼           | +        | $\dashv$ | ╁         | +             | +       | +       | -        |   |
|                 | 10       | Н             | $\neg$   | 寸        | $\neg$   | -          |                 | T        | $\vdash$        | 1                      |  | 60         | +            | <del>                                     </del> | ╁      | +-      | 1        |          | $\neg$                 | $\dashv$ | -                                       |       | 110        |               | +        | $\dashv$ | $\dagger$ | +             | +       | +       | $\vdash$ |   |
|                 | 11       | П             |          |          |          |            |                 |          |                 | ٦                      |  | 61         | $\top$       |  | 1      | -       |          |          | _                      |          | 1                                       |       | 111        |               | 7        | 十        | 1         | T             | $\top$  | $\top$  | 1        | l |
|                 | 12       |               |          |          |          |            |                 |          |                 |                        |  | 62         |              |  |        |         |          |          |                        |          |   |       | 112        |               |          |          |           |               | T       | $\perp$ |          | 1 |
|                 | 17(4)    | Ш             |          |          |          |            |                 |          |                 |                        |  | 63         |              |  |        |         | L        |          |                        | _   _    |   |       | 113        |               |          |          |           | Ι             | $\perp$ | $\perp$ |          |   |
|                 |          | Ш             | _        | _        |          |            |                 | _        |                 | 4                      |  | 64         | _            | ļ  | 1_     | $\perp$ |          |          |                        | $\perp$  |   |       | 114        |               | _        |          |           |               | ┷       | ╽       | L        |   |
|                 | 15       | -11           | -        | 4        |          |            | 1               | _        | $\vdash$        | 4                      |  | 65         | <b> </b>     | ↓_   | 4_     | _       |          |          |                        | $\perp$  | _                                       |       | 115        | $\perp \perp$ |          | $\perp$  | $\perp$   | 1             | 4       | 1       | <u> </u> |   |
|                 | 16<br>17 | $\mathcal{H}$ | $\dashv$ | 4        | $\dashv$ |            | $\vdash$        | _        | <del></del>     | 4                      |  | 66         | -            | ļ  | +      | 1       | _        |          | $\dashv$               |          | 4                                       | ·     | 116        |               | 4        |          |           |               | +       | ┼       | ╀-       |   |
|                 | 18       | Н             | $\dashv$ | $\dashv$ | $\dashv$ |            |                 | _        |                 | 4                      |  | 67<br>68   | ┼            | ┼-   | ┼-     | ╀       | -        | -        |                        |          | -                                       |       | 117        |               | 4        | +        | +         | +             | +       | +       | ┼        | ŀ |
|                 | 19       | ╂┤            | -+       | ᅱ        | $\dashv$ |            | $\vdash$        | -        |                 | $\dashv$               |  | 69         | +            | ╁  | ╀      | +       | $\vdash$ | $\vdash$ | $\dashv$               | +        | -                                       |       | 118<br>119 | $\vdash$      | $\dashv$ | +        | +         | +             | +       | +       | $\vdash$ | l |
|                 | 20       | H             | $\dashv$ | ᅱ        | $\vdash$ | -          | $\vdash \vdash$ | $\dashv$ |                 | ┨                      | <u> </u>   | 70         | +-           | +  | ╁╴     | ╁       | -        | $\vdash$ | +                      | +        | 1                                       |       | 120        | ╁┼            | $\dashv$ | +        | +         | +             | +       | +-      | +        | 1 |
|                 | 21       | H             | $\dashv$ | +        | $\dashv$ | _          | $\vdash$        | $\dashv$ | $\vdash$        | ┪                      | <del>                                     </del> | 71         | +            | t  | +-     | +       |          | $\vdash$ | $\dashv$               | +        | 1                                       |       | 121        | +-+           | $\dashv$ | $\dashv$ | +-        | +             | +       | +       | +        | 1 |
|                 | 22       |               |          | -        |          |            | $\vdash$        | $\dashv$ | $\vdash$        | ┥                      | $\vdash$   | 72         | +            | +  | +      | 1       | -        | -        |                        |          | -                                       |       | 122        | + +           | $\dashv$ | +        | +         | +             | +-      | +       | +-       | i |

|          |            |             | _        |                      |         |                  |   |          | 02  | $\perp$                 |               |        |          |              |        |          | i |          | 102 |   |          |               | - 1       | - 1             |          |                    |                                    | - 1      |
|----------|------------|-------------|----------|----------------------|---------|------------------|---|----------|-----|-------------------------|---------------|--------|----------|--------------|--------|----------|---|----------|-----|---|----------|---------------|-----------|-----------------|----------|--------------------|------------------------------------|----------|
|          | 3          |             |          |                      |         |                  |   |          | 53  | TT                      |               |        |          |              |        |          |   |          | 103 |   |          | П             | $\Box$    | П               | $\neg$   | $\Box$             |                                    | ٦        |
|          | 4          | Т           |          |                      |         |                  |   |          | 54  | $\Box$                  |               |        |          |              |        |          | ı |          | 104 |   |          | $\Box$        | $\neg$    |                 |          | $\neg$             | $\neg$                             | ヿ        |
|          | 5          | $\top$      |          |                      |         |                  |   |          | 55  | $\Box$                  |               | $\top$ |          |              |        |          | ĺ |          | 105 |   |          | $\sqcap$      | コ         | コ               | $\neg$   | $\neg$             | 十                                  | ヿ        |
|          | 6          |             |          |                      |         |                  | $\neg$                                  |          | 56  | $\Box$                  |               |        |          |              | $\neg$ | 1        |   | -        | 106 |   |          | $\Box$        | ヿ         | 寸               | $\neg$   | $\neg$             | $\top$                             | ⇥        |
|          | 7          | $\vdash$    | +-       |                      | $\neg$  |                  | $\dashv \dashv$                         |          | 57  | +                       |               | +      |          |              | $\top$ | T        | ŀ |          | 107 | _ |          | 一             | 寸         | 7               | $\neg$   | $\dashv$           | +                                  | $\dashv$ |
|          | 8          | $H^-$       | +        | $\vdash$             | +       |                  | $\dashv \dashv$                         |          | 58  | +                       | $\dashv$      | +      | H        | _            | +-     | +        |   | _        | 108 | - | -        | $\vdash$      | $\dashv$  | $\dashv$        | $\dashv$ | $\dashv$           | +                                  | ᅱ        |
| -        | 9          | H           | +        | -                    | +       |                  | +                                       | $\vdash$ | 59  | +                       | -+-           | +-     | -        |              | +      | +        |   | -        | 109 |   | Н        | $\vdash$      | $\dashv$  | $\dashv$        | $\dashv$ | $\dashv$           |                                    | $\dashv$ |
| <u> </u> | 10         | ╫╴          | ┿        | $\vdash$             | +       | $\vdash$         | +                                       | $\vdash$ | 60  | +                       |               |        | Н        | -            |        | +        |   |          | 110 | _ | Н        | $\dashv$      | $\dashv$  | $\dashv$        | $\dashv$ | $\dashv$           |                                    | $\dashv$ |
| -        | 11         | Н           | +        |                      |         | -                | +                                       | -        | 61  | +                       | +             | +-     | -        |              |        | -        |   |          | 111 |   | Н        | $\vdash$      |           | $\dashv$        | $\dashv$ | $\dashv$           | $\dashv$                           | $\dashv$ |
|          |            | ₩           | +        |                      | +-      | -                | +                                       | -        | 61  | +-                      |               | +      | 1        | -            | +      | $\vdash$ |   |          | 111 | _ |          |               | $\dashv$  | $\dashv$        | $\dashv$ | $\dashv$           | $\dashv$                           | $\dashv$ |
|          | 12         | ₩           | +        |                      | +-      |                  | +                                       | $\vdash$ | 62  |                         |               | -      | H        | _            | +      | $\vdash$ |   |          | 112 | _ |          | $\vdash$      | $\dashv$  | $\dashv$        | $\dashv$ | $\dashv$           | -                                  | _        |
| -        | 13         | ₩-          | 1        | $\vdash$             | -       |                  | 44                                      | -        | 63  | +                       | +             | +      | Н        | _            |        |          |   |          | 113 |   | Щ        | ⊢             | _         | _               | $\dashv$ | _                  | $\perp$                            | 4        |
|          | (14)       | <b>!</b>  _ | 1        |                      |         | $\vdash$         | 44                                      | _        | 64  | $\downarrow \downarrow$ |               | _      |          | _            | $\bot$ | $\sqcup$ |   |          | 114 |   |          | $\vdash$      | _         | _               | _        |                    |                                    | _        |
|          | 15         | Щ.          |          |                      |         |                  | $\perp$                                 |          | 65  | 1                       |               |        |          |              |        |          |   |          | 115 |   |          | Ш             | _         |                 | 凵        |                    | $\bot$                             |          |
|          | 16         | Щ           |          | $oxed{oxed}$         |         | Ш                |   |          | 66  |                         |               |        |          |              |        |          |   | •        | 116 |   |          | Ш             |           |                 |          | $\perp$            | $\perp$                            |          |
|          | 17         | Щ           |          |                      |         |                  | لــــــــــــــــــــــــــــــــــــــ |          | 67  |                         |               |        |          |              |        |          |   |          | 117 |   |          |               | $\Box$    | ]               |          | $\Box$             | ]_                                 | _]       |
|          | 18         | Ш           |          | $\Box \Gamma$        |         |                  |   |          | 68  |                         |               | T      | П        |              | T      |          |   |          | 118 |   |          | П             | T         | T               | $\neg$   | T                  | $\neg$                             | 7        |
|          | 19         |             |          |                      |         |                  |   |          | 69  |                         |               | 1      |          | ĺ            |        |          |   |          | 119 |   |          | 一             | $\Box$    | $\neg \uparrow$ | $\neg$   | $\neg$             | $\top$                             | ヿ        |
|          | 20         | П           |          |                      |         |                  | $\Box$                                  |          | 70  |                         | •             |        |          |              | 丁      |          |   |          | 120 |   |          |               | ヿ         | ヿ               | コ        | $\neg$             | $\neg$                             | ヿ        |
|          | 21         | П           | T        |                      |         |                  |   |          | 71  | 1                       |               |        |          |              | 1      | $\Box$   |   |          | 121 |   |          | $\Box$        | $\exists$ | $\neg$          | $\neg$   | $\neg$             | 十                                  | ヿ        |
|          | 22         | $\vdash$    |          |                      | 1       |                  | $\top$                                  |          | 72  | +                       |               | $\top$ | П        | _ <u>†</u> - | 1      | 1        |   |          | 122 |   |          | $\vdash$      | $\dashv$  | ╛               | $\dashv$ | _                  | -                                  | ᅥ        |
|          | 23         | 11-         | $\vdash$ | _                    | +-      |                  | $\top$                                  |          | 73  | 1-1                     | _             | _      | $\vdash$ | $\neg$       | 1      | H        |   |          | 123 |   |          | 一             | $\dashv$  | 寸               | $\dashv$ | $\dashv$           |                                    | ᅱ        |
|          | 24         | $H^-$       | +-       |                      | ╁       | H                | $\pm$                                   |          | 74  | +                       |               | +      | Н        | $\dashv$     | +      | +        |   |          | 124 | - | Н        | $\vdash$      | $\dashv$  | $\dashv$        | ᅥ        | -+                 | -                                  | ᅱ        |
|          | 25         | +-          | +        | +                    | +       | $\vdash$         | +                                       | -        | 75  | +                       | +             | +      | Н        | $\dashv$     | ╅      | ╁┤       |   |          | 125 | — | Н        | $\vdash$      | $\dashv$  | -               |          | $\dashv$           | +                                  | $\dashv$ |
| -        | 25<br>(26) | +           | +        | -                    |         | -                | +                                       | $\vdash$ | 76  | +                       |               | ╁      | Н        |              | +-     | +        |   | _        | 126 | - | $\vdash$ | $\rightarrow$ | $\dashv$  | $\dashv$        | $\dashv$ | $\dashv$           | -+                                 | $\dashv$ |
| -        | 27         | ┿           | +        |                      |         |                  | $\dashv\dashv$                          | $\vdash$ | 77  | ╁┯┼                     | -             |        | -        | -+           | +      | $\vdash$ |   | <u> </u> | 120 | _ |          | $\dashv$      | -         | -+              |          | $\dashv$           | +                                  | $\dashv$ |
| -        |            | +-          | +        |                      |         | $\vdash$         | +                                       | $\vdash$ | 77  | ╁┷┼                     | +             | -      | -        | -            | -      | +        |   | <u> </u> | 127 |   |          | $\vdash$      | -         | $\dashv$        | -        | $\dashv$           | -                                  | $\dashv$ |
| -        | 28         | +           | +        | $\vdash$             |         | $\vdash$         | 4-4                                     | -        | 78  | +                       |               | -      | Ш        |              | 4      | $\vdash$ |   |          | 128 |   |          | $\dashv$      | 4         | $\dashv$        | _        |                    | $\dashv$                           | _        |
|          | 29         | Н_          | $\vdash$ |                      |         | $\vdash$         | 44                                      | <u> </u> | 79  | +                       | _             | _      | Ш        |              |        | $\sqcup$ |   |          | 129 | _ |          | $\dashv$      | _         | _               |          | 4                  | $\dashv$                           | _        |
|          | 30         | Щ           | 1        | _                    |         | <u> </u>         | $\dashv$                                | ┕        | 80  | 1                       | _ _           |        |          |              |        | Ш        |   |          | 130 |   |          | $\perp$       |           | _               |          |                    | $\perp$                            | _        |
|          | 31         | Ц.          |          |                      |         | LL.              | $\perp$                                 | L        | 81  | $\perp \perp$           |               |        | Ш        |              |        | Ш        |   |          | 131 |   |          |               | $\Box$    |                 |          |                    |                                    |          |
|          | 32         |             | $\perp$  |                      | $\perp$ |                  |   | L        | 82  |                         |               | ┸      |          |              |        | Ш        |   |          | 132 |   |          |               |           |                 |          |                    |                                    |          |
|          | 33         |             |          |                      |         |                  |   |          | 83  |                         |               | ┸      |          |              |        |          |   |          | 133 |   |          |               |           |                 |          |                    |                                    | П        |
|          | 34         | 1.          |          |                      |         |                  |   |          | 84  |                         | Т             |        |          |              |        | П        |   |          | 134 |   |          | П             | П         | $\neg$          | П        |                    | $\top$                             | 乛        |
|          | 35         | Т           |          | -                    |         |                  |   |          | 85  | П                       |               | Т      |          |              |        |          |   |          | 135 |   |          |               | $\exists$ | ヿ               | $\neg$   |                    | $\top$                             | ヿ        |
|          | 36         | Т           |          |                      |         |                  |   |          | 86  | $\Box$                  | $\neg \vdash$ | $\top$ |          |              | $\top$ |          |   |          | 136 |   |          | $\Box$        | $\exists$ | $\neg$          |          | 一                  | $\neg$                             | ヿ        |
|          | 37         | $\top$      |          |                      |         |                  |   |          | 87  | $\Box$                  |               |        |          | $\neg$       | $\top$ | $\Box$   |   |          | 137 |   |          | $\top$        | ヿ         | $\neg$          | $\neg$   | $\neg$             | 十                                  | ヿ        |
|          | 38         |             | $\top$   |                      | $\top$  |                  | $\neg \neg$                             |          | 88  | 1                       |               | 1      | П        |              | 1-     | 1        |   |          | 138 |   |          | $\neg$        | $\neg$    | 寸               | 寸        | $\neg$             | 十                                  | ᅥ        |
|          | 39         | 十           | +        |                      | +       |                  | $\top$                                  | -        | 89  | $\vdash$                | _             | +      | П        | _            | ╅      | ╁        |   | -        | 139 | _ |          | $\vdash$      | +         | $\dashv$        | ┪        | $\dashv$           | $\dashv$                           | -        |
|          | 40         | ╁           | +        |                      | +       | $\vdash$         | $\dashv$                                | $\vdash$ | 90  | $\vdash$                | +             | +      | Н        | +            | +-     | +        |   |          | 140 |   | $\vdash$ | -+            | $\dashv$  | $\dashv$        | $\dashv$ |                    | +                                  | $\dashv$ |
| <b> </b> | 41         | +           | +-1      |                      | 1-      |                  | $\dashv$                                | $\vdash$ | 91  | +                       | +             | +      | Н        | +            | +      | +        |   |          | 141 | - | $\vdash$ | $\dashv$      | $\dashv$  | $\dashv$        | $\dashv$ | $\dashv$           | +                                  | $\dashv$ |
|          | 42         | ╁           | +        | -+-                  | +-      |                  | ┽┤                                      | $\vdash$ | 92  | ╁─┼                     |               | +      | Н        |              | +      | +        |   | _        | 142 |   | $\dashv$ | $\dashv$      | $\dashv$  | $\dashv$        | $\dashv$ | $\dashv$           | +                                  | $\dashv$ |
| $\vdash$ | 43         | ╁╴          | ╅╾┦      | -                    | +       | $\vdash$         | +                                       | $\vdash$ | 93  | ╁┼                      |               | +      | $\vdash$ |              | ╁      | ╁╌┤      |   |          | 142 |   |          | <del></del>   | $\dashv$  | $\dashv$        |          | $\dashv$           | +                                  | $\dashv$ |
| -        | 43         | +-          | ╁╾╂      |                      | +       |                  | +                                       | -        | 93  | ╁╌┼                     | -             | +      | $\vdash$ | $\dashv$     | +      | +        |   |          | 143 |   |          | -             | $\dashv$  | $\dashv$        |          | -+                 | +                                  |          |
| <u> </u> | 44         | +-          | ╁        | $-\vdash$            | +       | $\vdash$         | $\dashv$                                | $\vdash$ | 94  | +-1                     | -             |        | Н        |              | +-     | ╀╌┤      |   |          | 144 |   |          | -             | -         | _               |          | -                  | +                                  | 4        |
| <b> </b> | 45         | 4           | $\vdash$ |                      |         |                  | +                                       |          | 95  | ₩                       | _ _           | -      | $\sqcup$ |              | -      | $\sqcup$ |   | L        | 145 |   | $\Box$   | $\dashv$      | _         | _               | _        | 4                  |                                    | _        |
| L        | 46         | +-          | $\vdash$ | _                    | $\perp$ | <del>    -</del> | 44                                      | <u> </u> | 96  | ⇊                       | $\perp$       | 4_     | Ш        |              | 4_     | $\sqcup$ |   |          | 146 |   |          |               | 4         | _               |          | ightharpoonup      |                                    | _        |
|          | 47         | $\perp$     | 1_1      |                      |         |                  | 4                                       | <u>_</u> | 97  | $\sqcup$                |               |        |          |              |        | Ш        |   |          | 147 |   |          |               | ᆜ         | $\perp$         |          | $oldsymbol{\perp}$ | $\perp \!\!\! \perp$               | ╝        |
|          | 48         | 1           |          | L                    |         |                  |   |          | 98  |                         |               |        |          |              |        | لــــــا |   |          | 148 |   |          |               | $\perp$   | ſ               |          |                    | $\perp \! \! \! \! \! \! \! \perp$ |          |
|          | 49         |             | ot       | $\perp \!\!\! \perp$ |         |                  |   | ·L       | 99  |                         |               |        | ĹΊ       |              |        |          |   |          | 149 |   |          |               |           |                 |          |                    |                                    | $\Box$   |
|          | 50         | Τ           |          | T                    |         |                  | TT                                      |          | 100 |                         | Т             | 1      |          |              | T      | П        |   |          | 150 |   |          | $\top$        | П         | T               | $\neg$   | $\neg$             | T                                  | $\neg$   |